UNIVERSITY of MARYLAND
SCHOOL OF SOCIAL WORK

Using Longitudinal Data to Assess Long-Term Outcomes Associated with Poverty in Maryland Students

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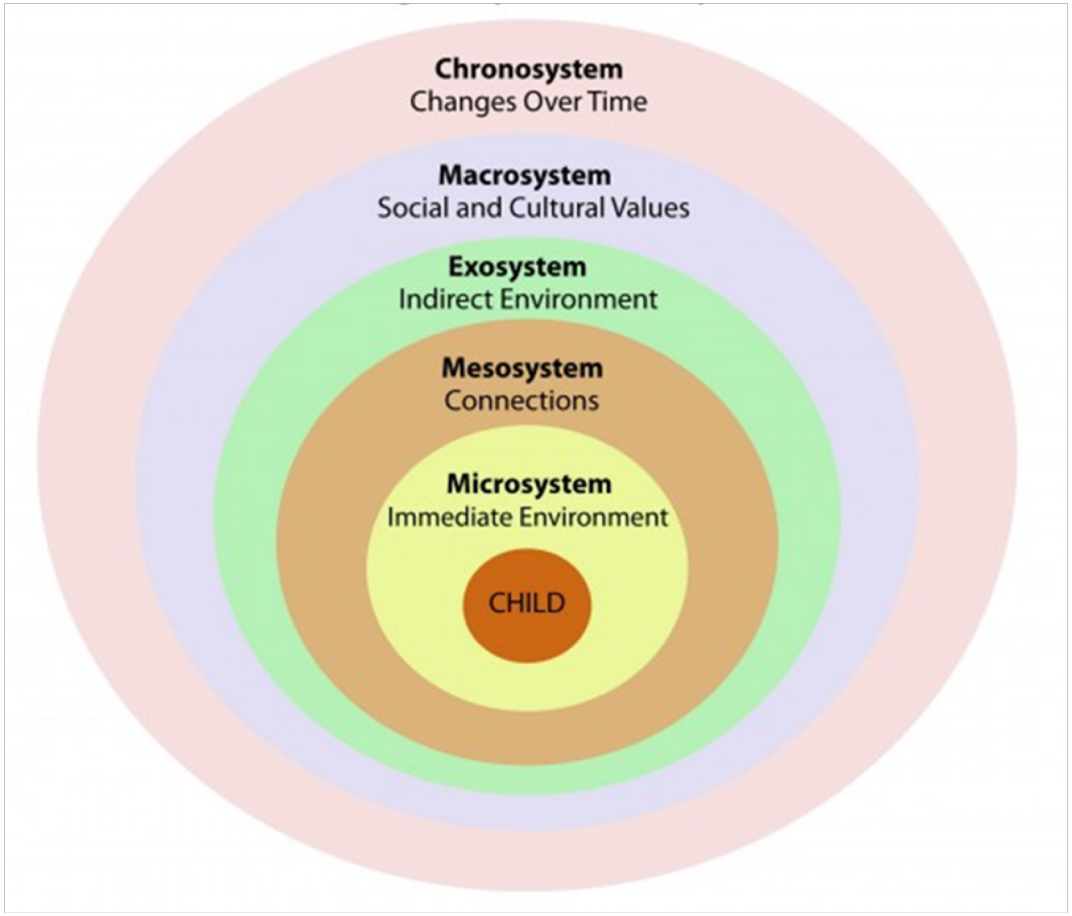
Student and School Poverty

- Poverty has been linked to poor physical health, low academic achievement, poor social and emotional functioning, fewer completed years of education, and lower workforce earnings (Duncan, Magnuson, Kalil, & Ziol-Guest, 2012; Leventhal & Brooks-Gunn, 2000; McLoyd, 1998).

- Students' educational outcomes depend on the schools they attend because the education provided by each school reflects the available resources, curriculum, and student body composition of the school (Borman & Dowling, 2010).

- Evidence from observational studies suggests that prolonged residence in poor neighborhoods is detrimental to educational outcomes (Burdick-Will et al. 2011; Harding 2003; Sampson, Sharkey, & Raudenbush 2008; Wodtke, Harding, & Elwert 2011).

Bronfrenbrenner's Ecological Systems



Psychology Notes HQ, 2013

The Current Study

- **Goal:** inform state commission on school funding about role of school concentration of poverty

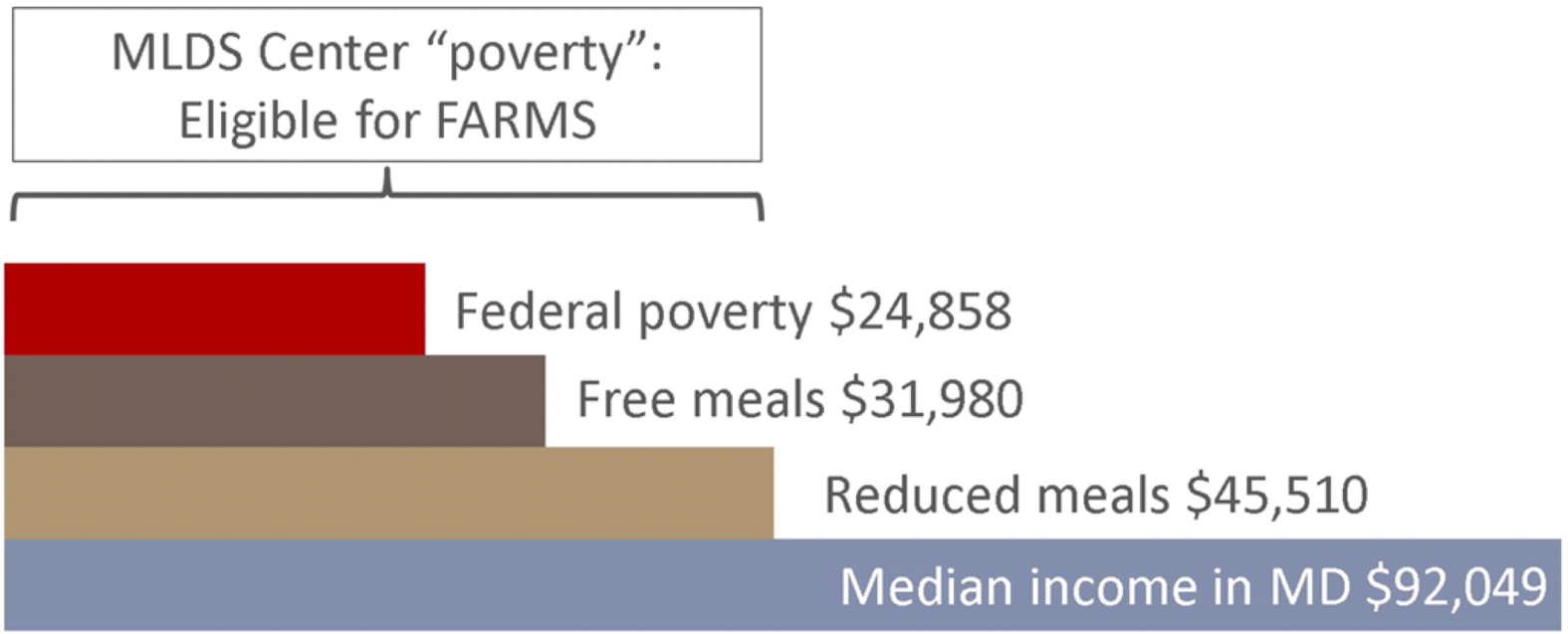
- Disentangle the roles of student and school factors...
  - Student household poverty
  - School concentration of poverty
  - Student race/ethnicity
  - School racial/ethnic composition

- Examined students' long-term educational and career outcomes, including:
  - Standardized test scores
  - High school graduation and dropout
  - Postsecondary enrollment
  - Wages

Method: Data

- Linked data sources for K-12, postsecondary, and workforce data
- 6 years of administrative records from MLDS
  - 63,282 students- 6th grade cohort
  - All 24 local school systems in Maryland
- Inclusion criteria
  - Did not transfer out of the MD public school system
  - Enrolled some point during 9th-12th grades
  - Complete demographic data available (gender, race/ethnicity)

Method: Measuring Poverty



Household income thresholds for a family of 4

*Student poverty duration = length of time eligible for FARMS from 6th - 12th grades

Method: Measures

- Independent Variables
  - Level One- student characteristics
    - Student poverty- duration of time FARMS eligible
    - Student race/ethnicity
  - Level Two- school characteristics
    - School poverty- mean poverty duration of all students in the school
    - School racial/ethnic composition
- Outcome Variables
  - High school graduation (on-time)
  - High School Assessment (HSA) Algebra scores
  - College enrollment (within one year of HS graduation)
  - Workforce wages (within first year after HS graduation)

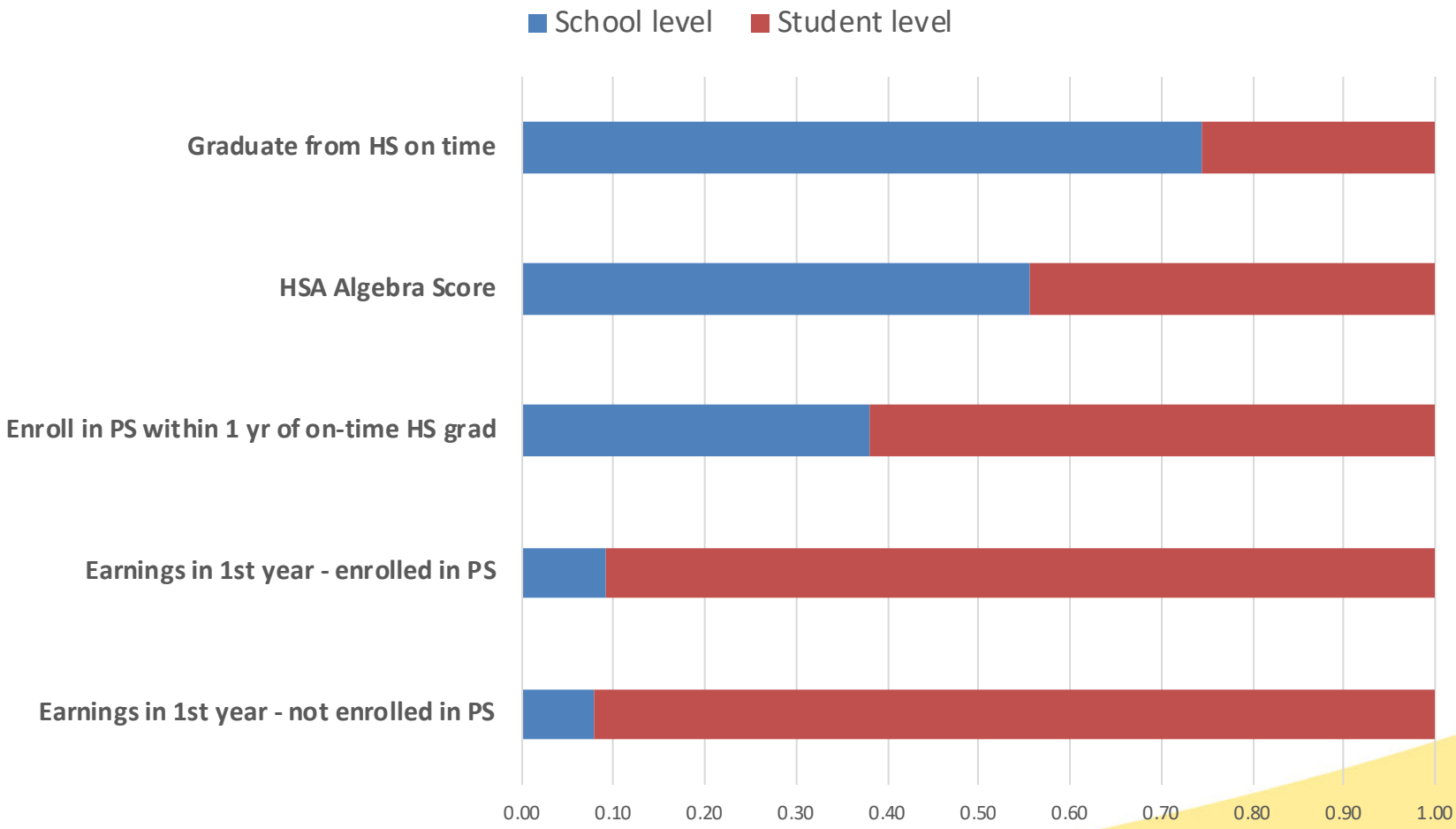
Method: Analyses

- Multiple Membership Multilevel Modeling
  - Two-level model (Students nested within schools)
- Random effects to model the intercepts
- Fixed effects for the independent variables
- Student poverty, school poverty, school racial composition were standardized ($M = 0$; $SD = 1$)
- Student race variables were grand mean centered

Descriptive Statistics

Variable	Category	%
Race/Ethnicity	Asian	5
	Black	35
	Hispanic	10
	White	45
	Other	4
Gender	Male	50
Experiences between 6th and 12th Grades	Ever in English Language Learner	3
	Ever in Special Education	14
	Ever Homeless	4
	Ever Eligible for FARMS	49

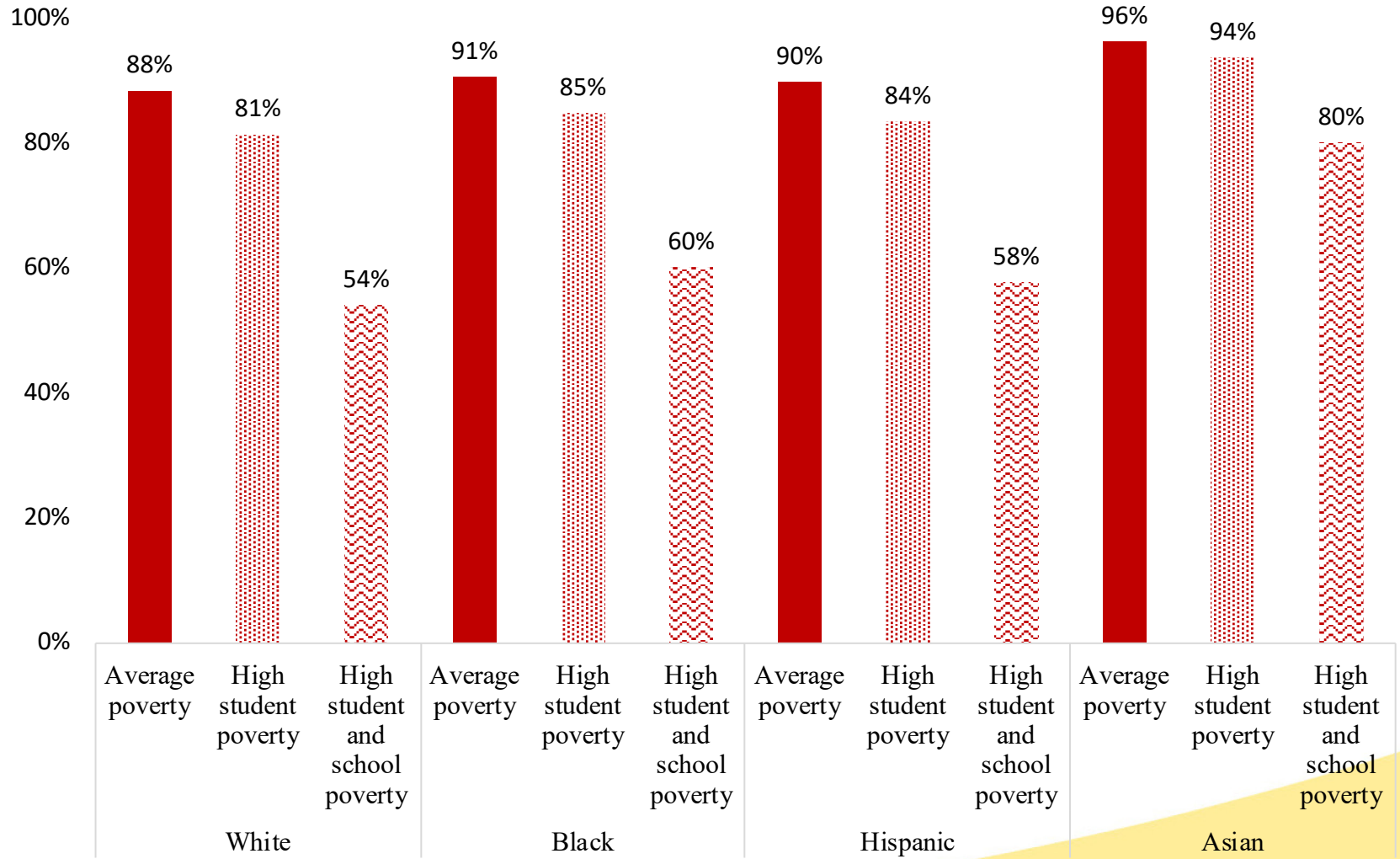
Proportion of variance at school and student levels



Results: High School Graduation

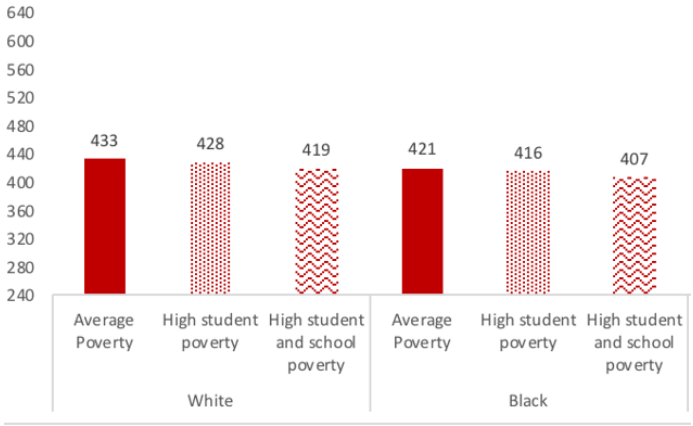
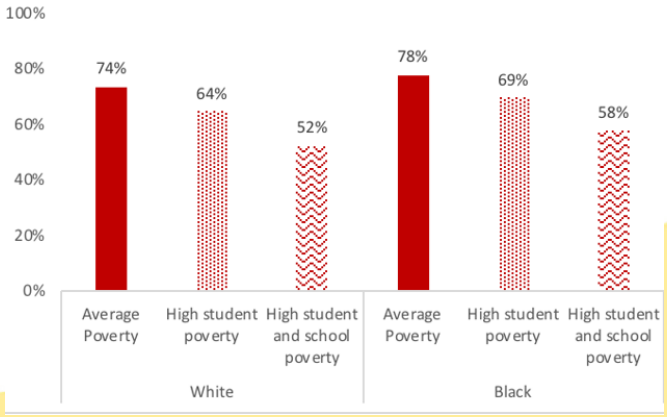
On-Time High School Graduation	Model 2: Poverty Main Effects (n=54465)				Model 3: Poverty and Race (n=54465)			
	β	SE	OR	Cohen's d	β	SE	OR	Cohen's d
Intercept	1.99***	0.13	7.32		2.03***	0.15	7.65	
Level 1								
Student poverty duration	-0.54***	0.02	0.58	-0.20	-0.55***	0.02	0.57	-0.20
Hispanic					0.15*	0.06	1.16	0.04
Black					0.23***	0.05	1.28	0.07
Asian					1.23***	0.12	3.43	0.22
Other					0.34***	0.09	1.40	0.09
Level 2								
School mean poverty duration	-0.86***	0.10	0.42	-0.35	-1.31***	0.12	0.27	-0.60
School % Hispanic					0.28***	0.08	1.32	0.07
School % Black					0.53***	0.11	1.70	0.13
School % Asian					-0.13	0.11	0.88	-0.04
School % Other					0.03	0.07	1.03	0.01

Results: Predicted Likelihood HS Graduation (On-time)



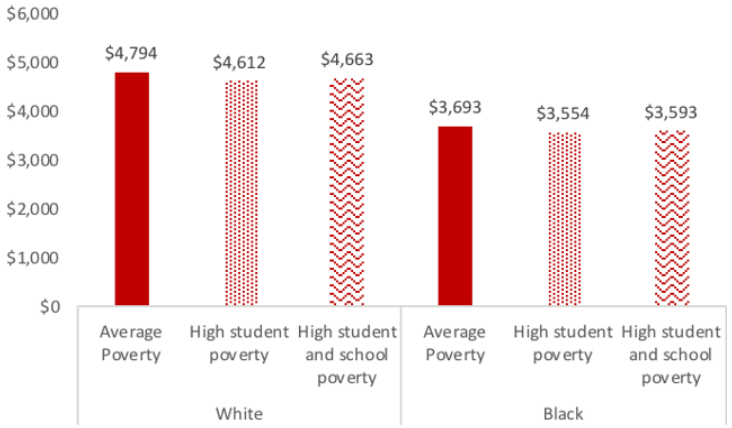
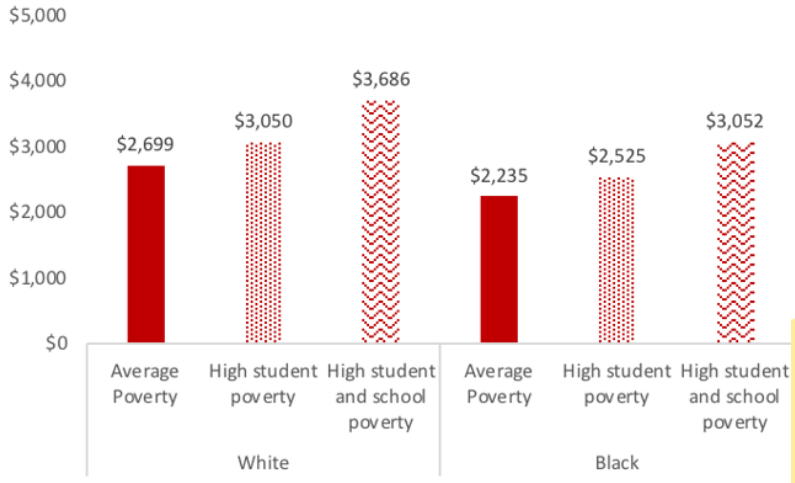
Note: Average student poverty = 0.36; Average school poverty = 0.37
Predictions are for students in schools with average racial/ethnic composition

Academic Outcomes

Outcome	Model 2 Results (Poverty Only)	Model 3 Predicted Outcomes (Poverty and Race/Ethnicity)
HSA Algebra (Proficient = 412; Advanced = 450)	A 1 SD increase in student poverty duration was associated with a 6 point decrease in HSA Algebra score (d = .20) A 1 SD increase in school mean poverty duration was associated with a 12 point decrease in HSA Algebra score (d = .39)	
College Enrollment (Within one year following on-time HS graduation)	A 1 SD increase in student poverty is associated with a .41 decrease in the log odds of enrolling in college (d= .20) A 1 SD increase in student poverty is associated with a .46 decrease in the log odds of enrolling in college (d = .23)	

Note: Model 3 results control for student race/ethnicity and school racial composition

Annual Wages

Outcome	Model 2 Results (Poverty Only)	Model 3 Predicted Outcomes (Poverty and Race/Ethnicity)
Annual Wages (Non-Postsecondary)	A 1 SD increase in student poverty is associated with a .05 decrease in annual log wages (d = .04) A 1 SD increase in school poverty is associated with a .07 decrease in annual log wages (d = .06)	
Annual Wages (Postsecondary)	A 1 SD increase in student poverty is associated with a .12 increase in annual log wages (d = .09) A 1 SD increase in school poverty is associated with a .04 increase in annual log wages (d = .03)	

Note: Model 3 results control for student race/ethnicity and school racial composition

Summary of Results

- Both student and school-level poverty were related to long-term academic outcomes, even after controlling for individual student race and school racial/ethnic composition.
- School concentration of poverty, regardless of individual poverty experience and race, usually predicts worse educational outcomes.
- Poverty related to lower annual wages for students not enrolled in college and higher annual wages for those enrolled in college.
- Racial and ethnic gaps in standardized test scores persist regardless of student and school-level poverty.
- Racial and ethnic gaps in high school graduation and postsecondary enrollment disappear or are reversed when controlling for student and school-level poverty and school's racial/ethnic composition.

Discussion

- Prior research reports that income-related achievement gaps are established before kindergarten and persist throughout K-12 education (Reardon, 2011; Reardon, 2013)

- May be due to a number of factors, including:
  - Insufficient resources (Jencks & Mayer, 1990)
  - Lower quality teachers (Lankford, Loeb, & Wyckoff, 2002)
  - Unequal access to social capital (Putnam, 2000)

- Racial/ethnic gaps in most outcomes disappear after controlling for poverty, which may be consistent with cultural differences in achievement motivation (Trumbull & Rothstein-Fisch, 2011)

- The persistence of racial/ethnic gaps in test scores even after controlling for poverty is consistent with literature on stereotype threat (Alter, Aronson, Darley, Rodriguez, & Ruble, 2010)

Discussion

- In this study, poverty was related to lower annual wages for students not enrolled in college and higher annual wages for those enrolled in college
- Education promotes economic success and social mobility and serves a protective effect against the detrimental role of poverty (Engle; 2007; Ruzojcic et al., 2018)
  - May help to explain why poverty is related to lower annual wages for students not enrolled in college
- Even after receiving financial aid for college, a considerable portion of need typically remains unmet, especially for students from low-income backgrounds (Pike et al., 2008; Long & Riley, 2007)
  - May help to explain why poverty is related to higher annual wages for students who were enrolled in college

Limitations

- Data only available starting 2007-08 academic year
- Excluded Maryland students not attending public schools
- Poverty indicator (FARMS eligibility) may not accurately capture true student and school poverty
- Workforce data excluded federal employees, private contractors, or self-employed individuals
- Additional variables at the student and school level were not included
- Excluded student's employment status (full or part-time)

Future Research

- Examine the protective role of additional student and school level characteristics
- Include elementary levels to assess effects of poverty during the entire K-12 experience
- Examine additional college and career outcomes (e.g. college persistence and degree attainment, workforce trajectories)
- Compare measures of poverty (FARMS vs Census data vs Title I)

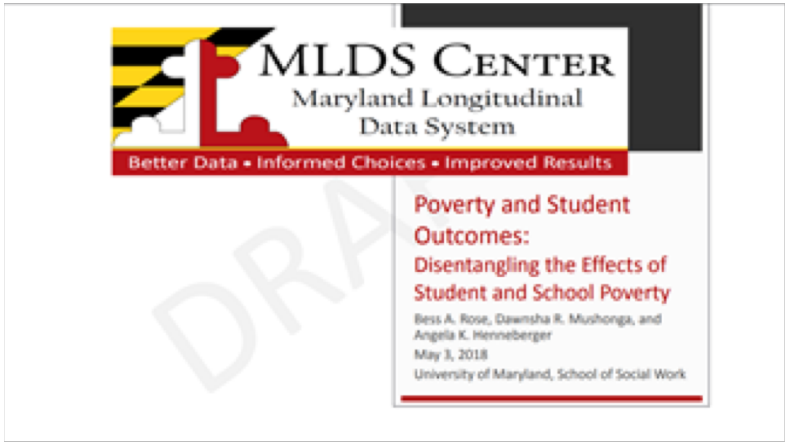
Implications

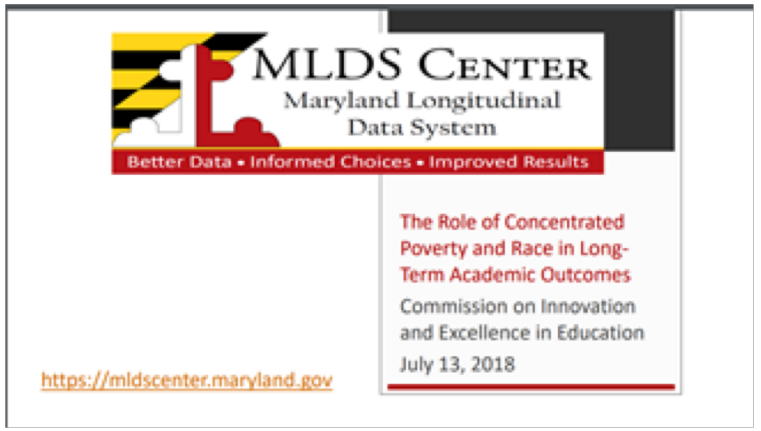
- Implementation of additional programs and policies for students living in poverty and schools with high concentrations of poverty.

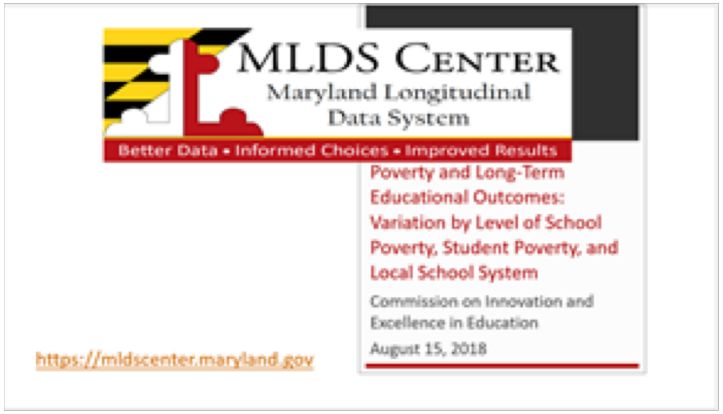
- Focus on strengths within high-poverty schools to better support students.

- Establish partnerships within the surrounding community to increase academic and career success.

For More Information







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Thank You

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